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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SASAKI, SHOGO

ART UNIT

PAPER NUMBER

1773

NOTIFICATION DATE

DELIVERY MODE

12/03/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<p align="center">Advisory Action Before the Filing of an Appeal Brief</p>	<p>Application No. 10/541,145</p>	<p>Applicant(s) SCHMIDT ET AL.</p>	
	<p>Examiner Shogo Sasaki</p>	<p>Art Unit 1773</p>	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 18 November 2010 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☒ The Notice of Appeal was filed on 18 November 2010. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
(b) ☐ They raise the issue of new matter (see NOTE below);
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
The status of the claim(s) is (or will be) as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: 1,2,4-6,9 and 11-13.
Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:
See Continuation Sheet.
12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____.
13. ☐ Other: _____.

/Shogo Sasaki/

/Brian R Gordon/
Primary Examiner, Art Unit 1773

Continuation of Box 11.

Amendment to claim 9 is acknowledged. The limitation of claim 9 has been considered in the previous office actions. The objection to claim 9 is withdrawn. The claims 1, 2, 4-6, 9, and 11-13 are entered.

Regarding claim 9 (Jones [US 3916465: Fig. 1-3; or US 3800602] in view of Lehmann et al. [Sensor Proceedings II, 2001, 487-492]), Lehmann et al. discloses that the micro machined TCD comprises silicon nitride ceramic.

As noted in the previous advisory action, the currently presented claim 1 is a combination of previous (5/4/2010) claims 1, 8 and 10. This combination has been considered in the previous action office action (6/18/2010).

The examiner restates the rejections and said rejections are maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4, 6, 9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 3916465: Fig. 1-3; or US 3800602) in view of Lehmann et al. (IDS: Sensor Proceedings II, 2001, 487-492).

Regarding claims 1, 2, 4, 6, 9 and 11-13, Jones (US 3916465) disclose a chromatogram (column 3, line 65—column 4, line 10) comprising a chromatographic column (16); a detector (17); and a sliding valve injector (Fig. 1) for chromatography having two sliding members with ports and apertures (18, 19) with a cover (20). The plate (19) includes Teflon clad on its surface (column 5, lines 21-24: Teflon is well known for its inertness and for very low friction coefficient.). Jones (US 3800602) also discloses a chromatogram with a similar valve injector with two sliding members with ports and apertures (Fig. 1-7).

Jones (US 3916465) also discloses that the detector may measure gas's thermal conductivity (column 5, lines 26-30: A gas flow sensor works by measuring thermal conductivity of a sample, or a change in thermal conductivity of a sample carrying conduit. Also thermal conductivity detector will have to be able to detect the presence of the gas indicating the flow.). Jones (US 3800602: Fig. 1-7) also further discloses a chromatogram (column 4, line 57—column 5, line 12) comprising a chromatographic column (16); a detector (17); and said similar valve injector with two sliding members with ports and apertures, and teach said detector (column 7, lines 35-39). In addition, Jones (US 3800602) shows multiple sliding valves injector used in series (Fig. 8). The sliding members of Jones (US 3916465; and US 3800602) also include multiple channels.

However, Jones references do not teach that said chromatogram(s) or the injector(s) may be made miniaturized and provided on a circuit board.

Lehmann et al. disclose a micro-machined gas chromatography module including a column; a flow sensor; a ball valve type injector; and a thermal conductivity detector provided on a silicon chip (abstract; and Fig. 1, 2, 4, 5 and 7).

Lehmann et al. further disclose:

- a control and evaluation unit provided on the circuit board (Fig. 3, 6 and 8: The controlling and the evaluation will have to be present on the device of Lehmann et al.);
- at least one heating element configured such that one or more of the injector, the separation column and/or the detector can be temperature-controlled (page 487, "1. Introduction," lines 3-6; and page 489 "3. The micro machined TCD");
- at least one heating element comprises ceramic plates with thick film heating elements (page 489 "3. The micro machined TCD");
- a plurality of recesses provided in the circuit board such that the electronic control and evaluation unit is protected from the heat emitted by the heating elements (Fig. 4. The heater strips are placed near the trench in silicon chip.);
- a plurality of recesses provided in the circuit board into which a plurality of capillaries are countersunk for the gas flow (page 488, "2. The separation column," lines 16-36).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide the micro-sized invention of Jones to the device of Lehmann et al., for the purpose of making the device portable, or reducing the sample size. A change in size is

generally recognized as being within the level of ordinary skill in the art.

The claim would have been obvious because "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense."

Claim 4 is a product-by-process claim. The patentability of said claim is based on the recited product and does not depend on its method of production.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jones (US 3916465: Fig. 1-3; or US 3800602) in view of Lehmann et al. (IDS: Sensor Proceedings II, 2001, 487-492), and further in view of Lehmann et al. (IDS: Micro Total Analysis System, 2000, 167-170).

Regarding claim 5, modified Jones discloses all of the limitations as set forth above. However modified Jones does not explicitly teach that the valve injector is made of silicon.

Lehmann et al. disclose a micro-machined gas chromatography module including a column; a ball valve type injector; and a thermal conductivity detector provided on a silicon chip (abstract). The injector of Lehmann et al. includes a micro-grooved sheet made of silicon (Fig. 3).

It would have been obvious to one having ordinary skill in the art at the time of the invention to choose silicon as a material for the injector as taught by Lehmann et al., for the purpose of providing a material suited for micro-etching the channels and holes. It was within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

Request for reconsideration filed 8/11/2010 was previously acknowledged. Applicant's arguments have been fully considered.

In response to the remarks against the Jones reference on page 4, it is noted that currently presented claim 1 (including the term "miniaturized") do not structurally limit the claimed apparatus to a particular dimension/size. Claims do not structurally require that the device to be limited to a device smaller than certain dimension. Jones' injector or chromatogram (analogues to the instant invention) may dimensionally differ from what is disclosed in instant application. However, the structure of the injector and the general configuration/arrangement of the chromatogram as claimed are disclosed by the Jones references. A skilled artisan, who may be interested in making a small chromatogram and contemplating to utilize a known injector with a larger dimension, would be motivated to alter the dimension of the known injector to accommodate the injector in his/her invention.

In response to page 5, the examiner respectfully asserts that a skilled artisan (in the field of modern chromatography art) would be motivated to look for another method of manufacturing the injector, which is structurally the same but smaller in size, using other available production technique. Claims do not structurally require that the claimed device would have to be made with a specific production technique. In addition, the manner in which a claimed apparatus is made do not distinguish the claimed apparatus from the prior art. Furthermore, Jones teaches covering the injector surface with a Teflon coat (Applicant's polymerized layer includes Teflon.). Jones does not limit said Teflon coat/clad on the surface of his injector to a particular thickness. Applicant's claim also does not limit the Teflon coat/clad to a particular thickness. In response to page 6, second paragraph, as noted in the last office action, how the material for the coat/layer is made or applied (plasma polymerized = method of manufacture), does not impart structural limitations to the apparatus claimed. The recitation "plasma polymerized," which is directed to the manner in which a claimed apparatus is made does not distinguish the claimed apparatus from the prior art. It is further noted that (although this is not part of the last rejection) the plasma polymerized coat is explicitly taught by Lehmann (abstract and discussion sections). Said feature does not appear to be the novel feature of instant invention.

In response to page 6, paragraph 3, the claim recites that the elements are arranged on a circuit board. The phrase "circuit board" does not require said element to be of a particular material or a structure. The limitation only requires a substrate that may be used to provide a circuitry. A silicon chip is a well known material for displacing a small circuitry (such as an imagery CCD sensor). It is noted (for instance in response to page 7, paragraph 2) that claim 1 does not even claim a circuitry connecting elements provided on said board.

In response to page 6, paragraph 4 to page 7, paragraph 2, Lehmann discloses for instance, a flow sensor for evaluating flow fluctuations and a monitor or control unit integrated to the device (section 4). In addition, the micro machined TCD taught by Lehmann will also have to have similar control unit. It is noted that claim 1 does not say that the control unit and the evaluation units are configured for (capable of performing) a particular analytical operation(s); or functionally tied to tie to other elements. The trenches (recess) are present on the silicon substrate of Lehmann.

The examiner maintains his previous position.